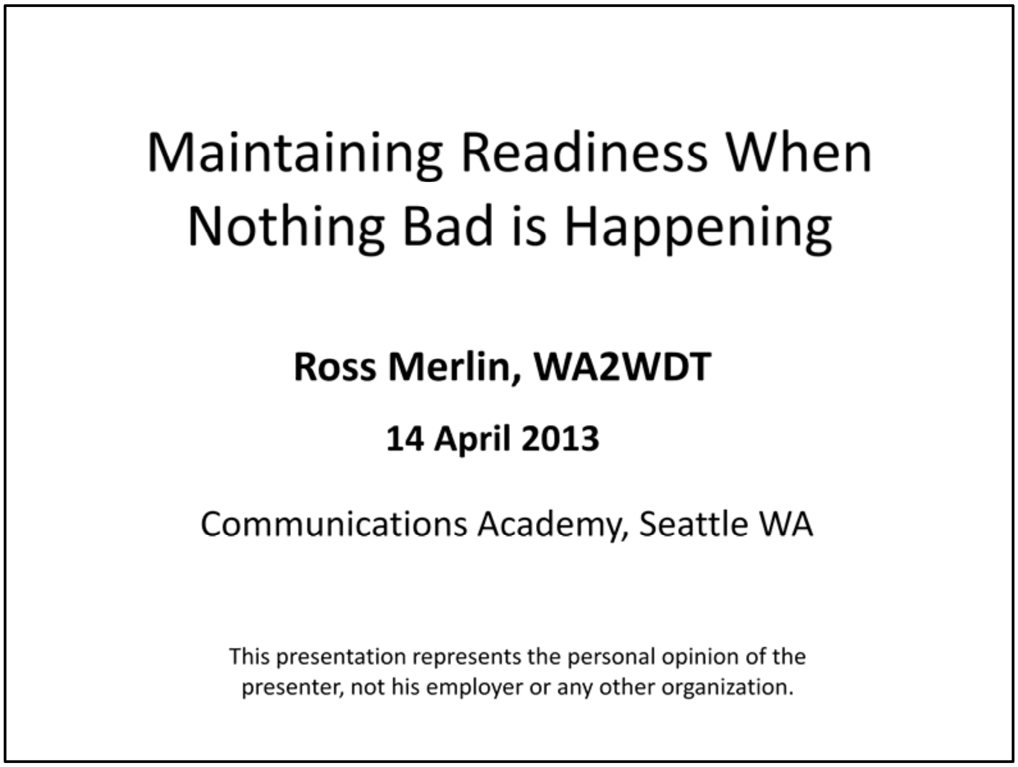


Maintaining Readiness When Nothing Bad is Happening

Ross Merlin, WA2WDT

14 April 2013

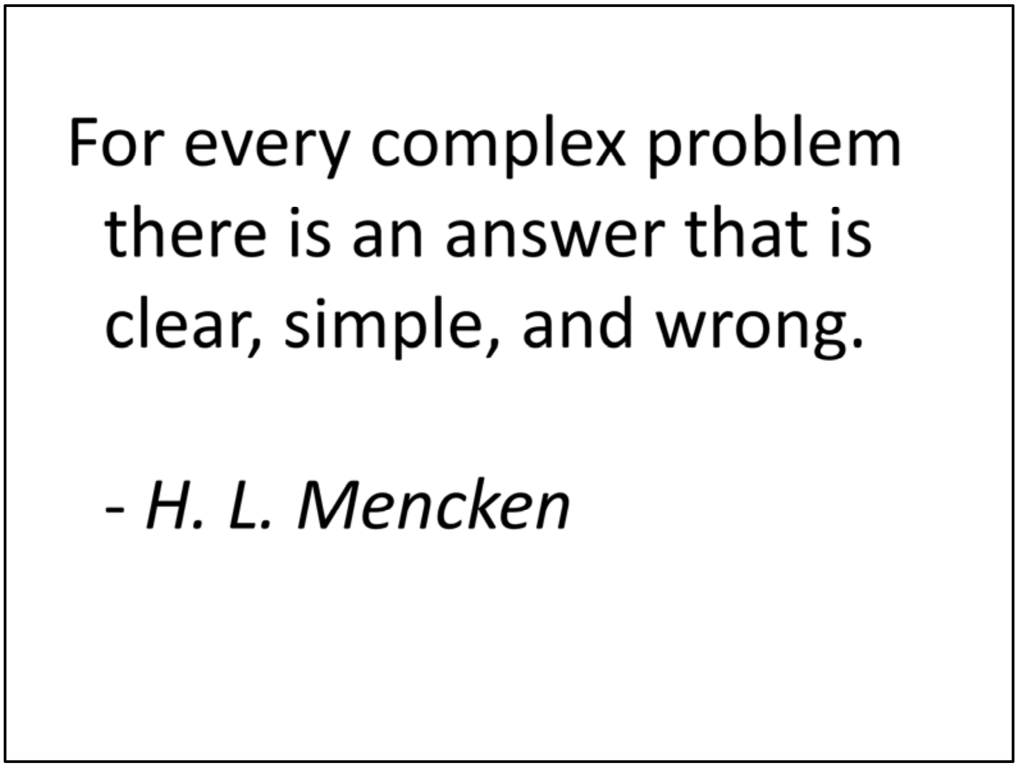
Communications Academy, Seattle WA

This presentation represents the personal opinion of the presenter, not his employer or any other organization.

"It's not that they
can't see the solution.

They can't see the problem."

- *G.K. Chesterton*

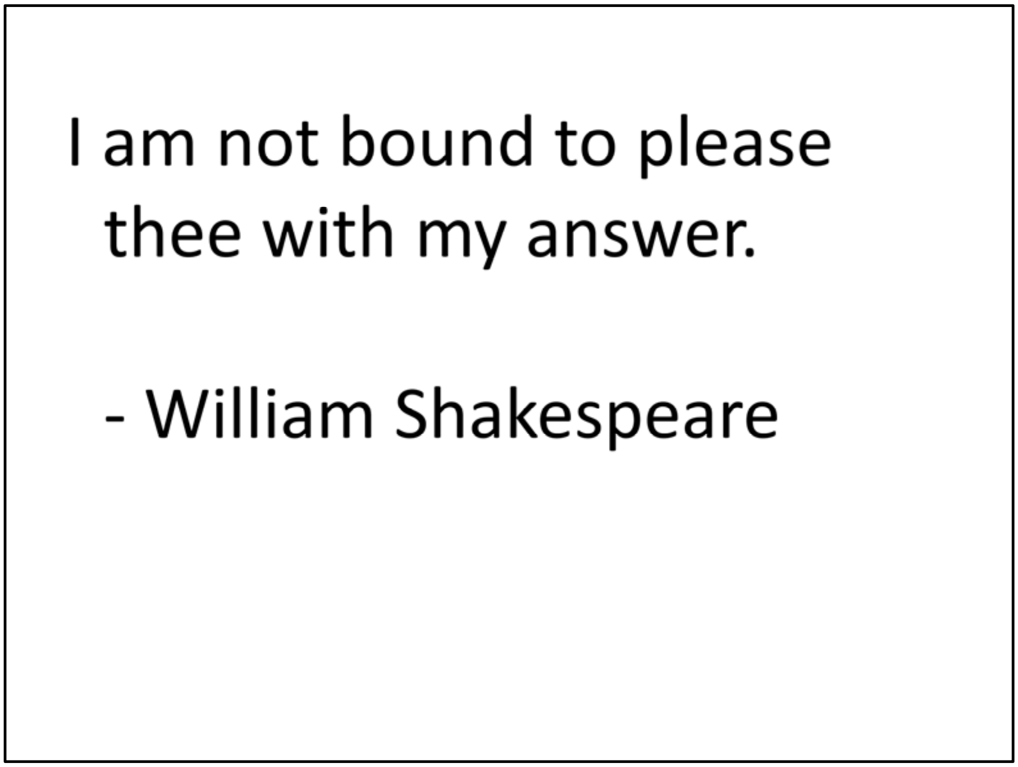


For every complex problem there is an answer that is clear, simple, and wrong.

- *H. L. Mencken*

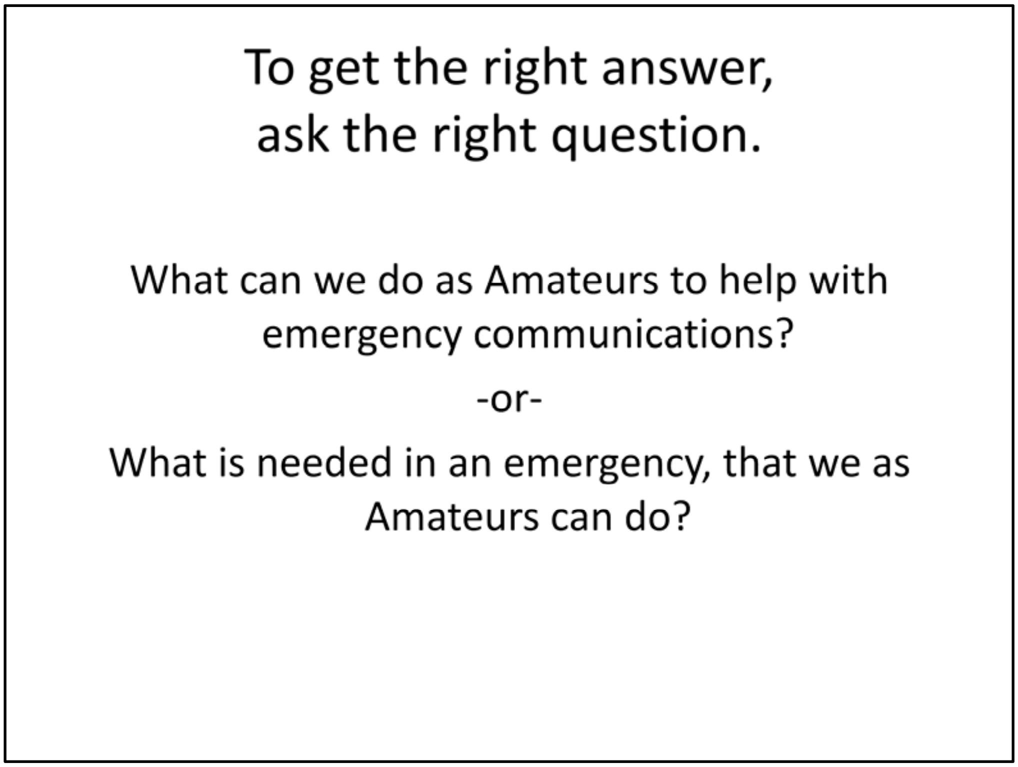
I was gratified to be able to answer promptly, and I did. I said I didn't know.

- *Mark Twain*



I am not bound to please
thee with my answer.

- William Shakespeare



To get the right answer, ask the right question.

What can we do as Amateurs to help with emergency communications?

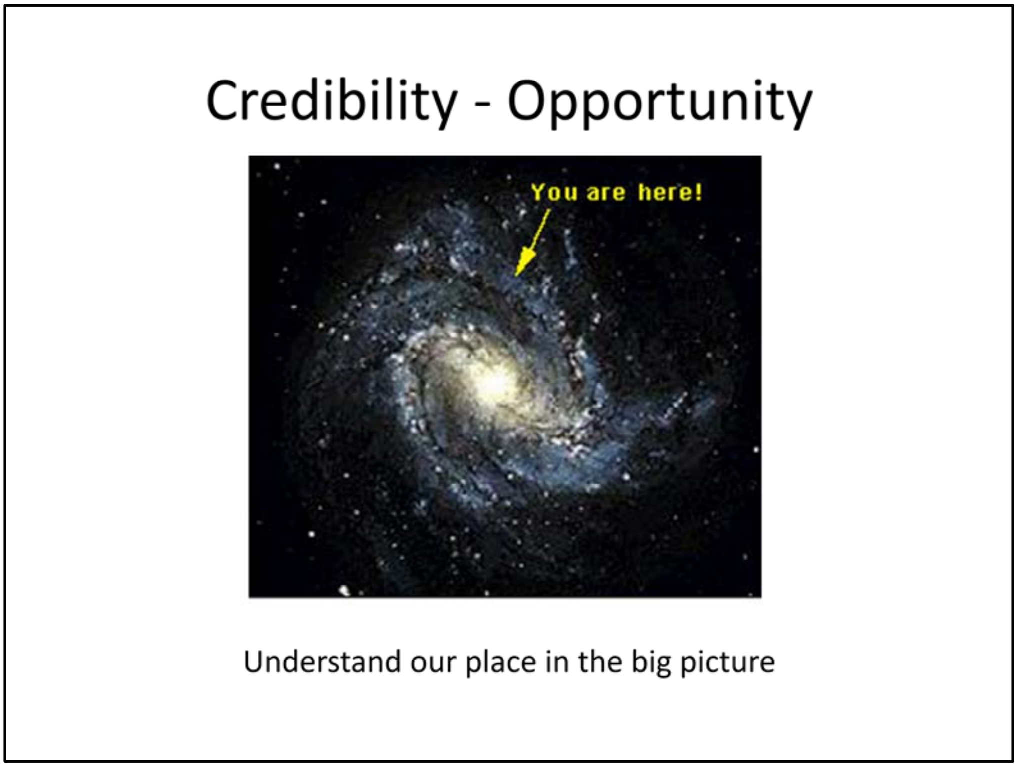
-or-

What is needed in an emergency, that we as Amateurs can do?

Before we consider what to do when nothing is happening, cinsider what we do when something is happening.

We could describe this problem as … or …

Big difference in how the question is phrased:
I want to use packet and atv and rtty and DSTAR and psk31 and APRS for whatever your problem is.
-or-
What do you need? I’ll match what I have to meet your need.



Credibility - Opportunity

Understand our place in the big picture

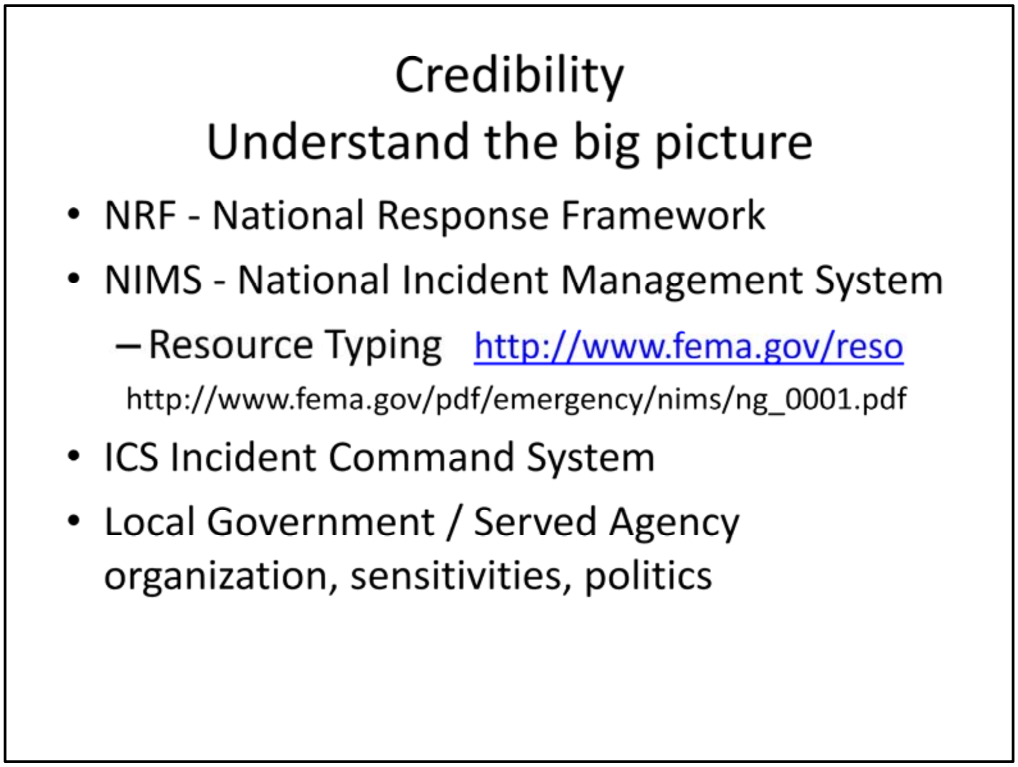
Radio systems in the 1970s – simple, less resilient, vulnerable dependencies - more opportunities for Amateur Radio to help.

Modern radio systems – complex, resilient, redundant, the engineers have mitigated dependencies – less opportunity for Amateur Radio to help.

“When all else fails … Amateur Radio” – that’s so 1970s. “All else” rarely fails – maybe some visible systems fail, but all? This slogan is insulting to the professionals who build, install, maintain, and operate PS LMR systems.

Why do we stay focused on the opportunities of yesteryear instead of looking at today’s opportunities – and tomorrow’s?
Today’s opportunities are:

1) A spike in demand that exceeds capacity
2) Groups that are not part of the radio system & have no access need comms now



Credibility
Understand the big picture

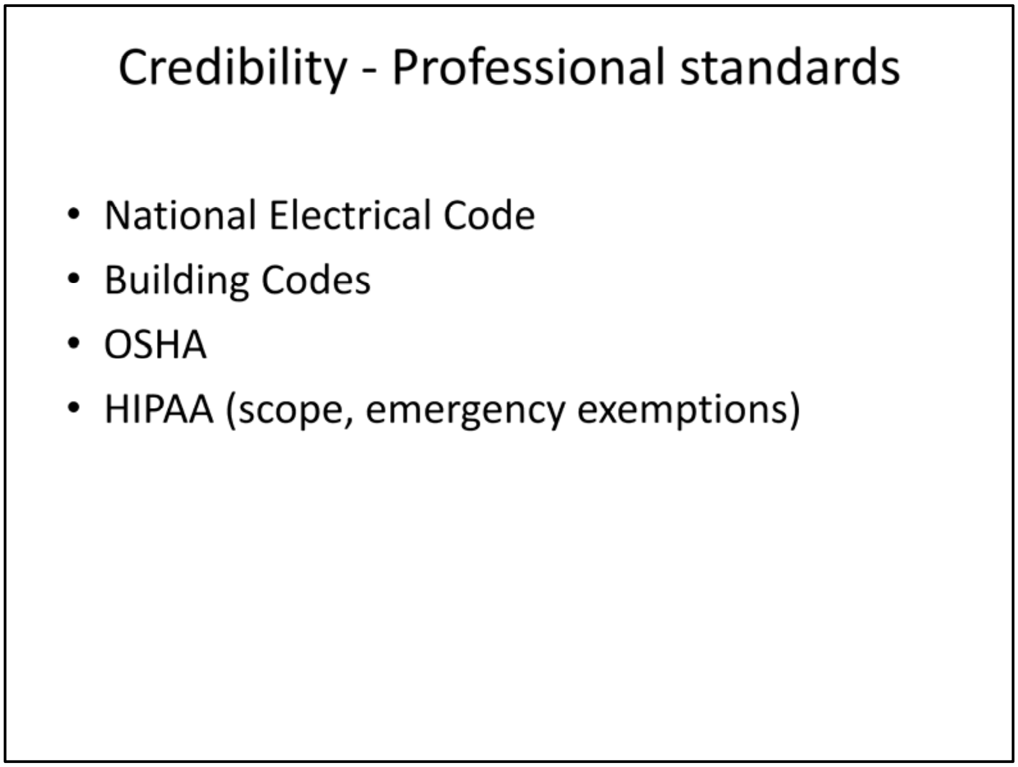
- NRF - National Response Framework
- NIMS - National Incident Management System
  - Resource Typing http://www.fema.gov/reso

    http://www.fema.gov/pdf/emergency/nims/ng_0001.pdf
- ICS Incident Command System
- Local Government / Served Agency organization, sensitivities, politics

Amateur Radio Communications Team – Resource Typing – approval process?

Internet claims: Proposed 2003, “Has been cleared by NIMS Resource Center” 2006
NOT approved as of 4/11/2013 - Not a case of Government at the speed of Government

2nd URL in slide is NIMS Guide 0001, National Resource Typing Criteria, dated March 27, 2008

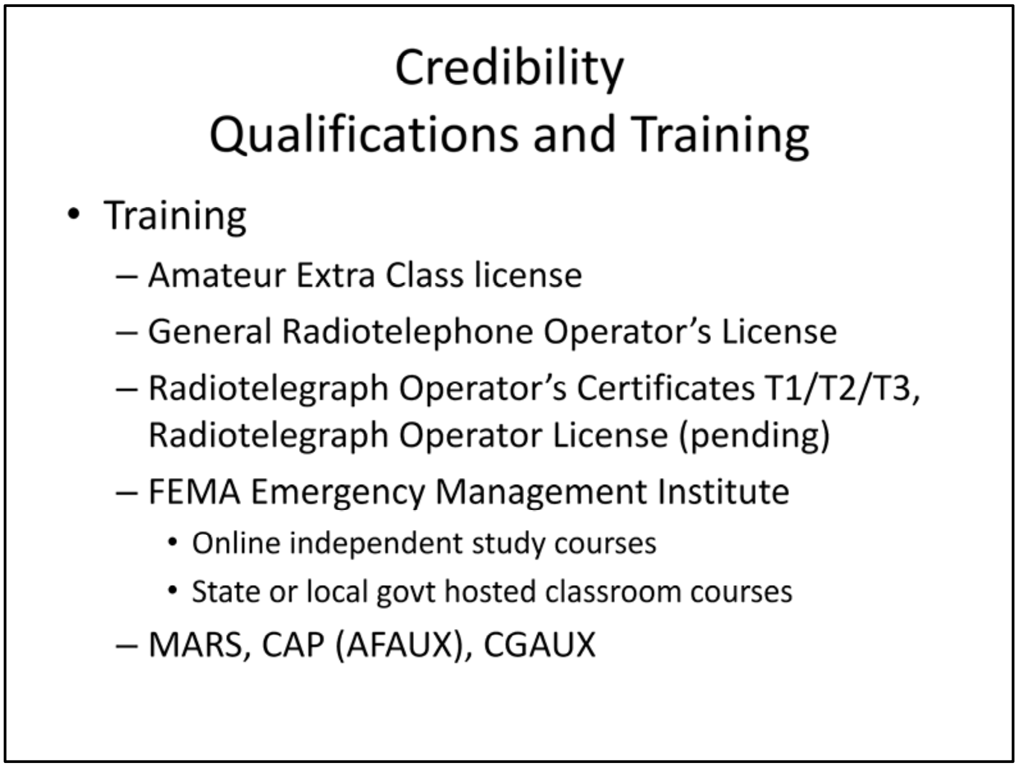


Credibility - Professional standards

- National Electrical Code
- Building Codes
- OSHA
- HIPAA (scope, emergency exemptions)

The people you want to help have to follow these. You don’t have to be an expert in all of these.
Know when to ask and who to ask about these regulations. Ignorance is no excuse.

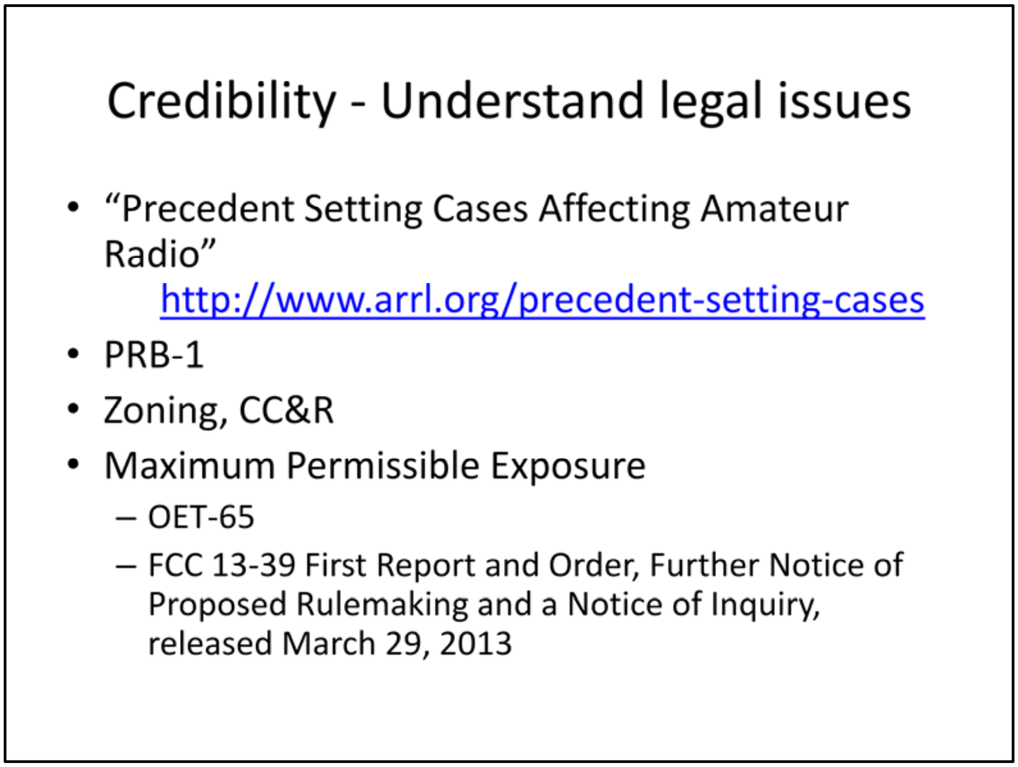
Much of what has been written about ham radio and HIPAA is wrong. Read it for yourself, find interpretations from authoritative sources.



Credibility
Qualifications and Training

- Training
  - Amateur Extra Class license
  - General Radiotelephone Operator’s License
  - Radiotelegraph Operator’s Certificates T1/T2/T3, Radiotelegraph Operator License (pending)
  - FEMA Emergency Management Institute
    - Online independent study courses
    - State or local govt hosted classroom courses
  - MARS, CAP (AFAUX), CGAUX

Professionals trust each other because their qualifications are recognized and understood, based on real research, peer review, and are field-proven.

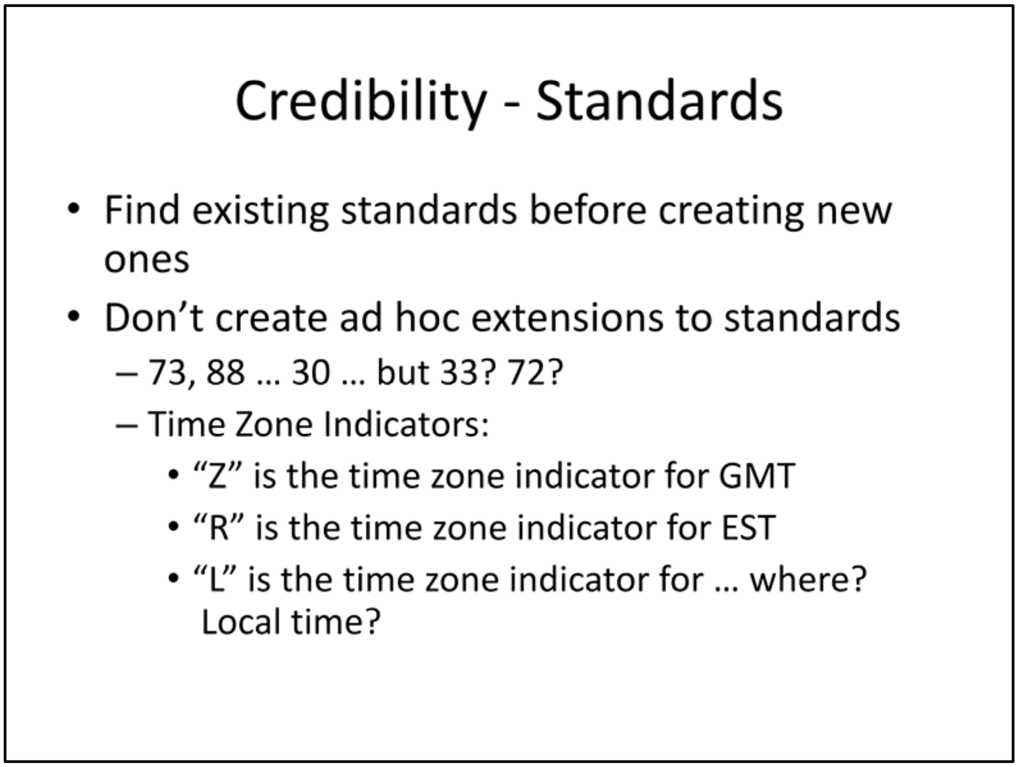


Credibility - Understand legal issues

- "Precedent Setting Cases Affecting Amateur Radio"
  http://www.arrl.org/precedent-setting-cases
- PRB-1
- Zoning, CC&R
- Maximum Permissible Exposure
  - OET-65
  - FCC 13-39 First Report and Order, Further Notice of Proposed Rulemaking and a Notice of Inquiry, released March 29, 2013

http://www.fcc.gov/document/fcc-review-rf-exposure-policies

Keep up with current events – check the ARRL home page every day

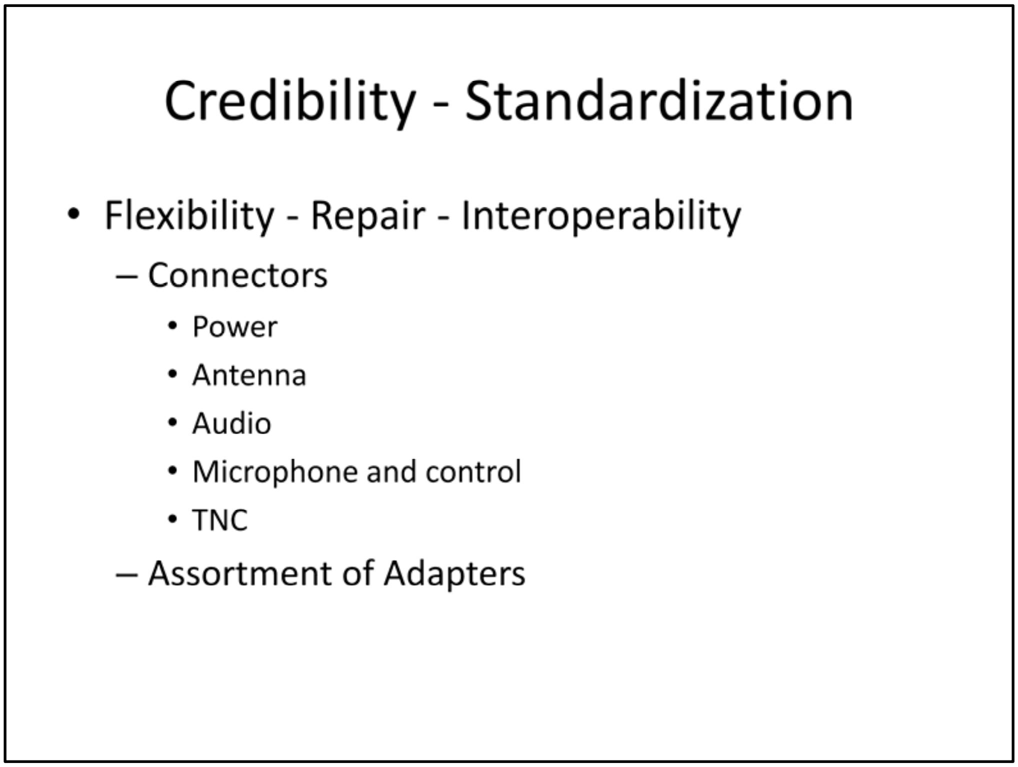


Credibility - Standards

- Find existing standards before creating new ones
- Don’t create ad hoc extensions to standards
  - 73, 88 … 30 … but 33? 72?
  - Time Zone Indicators:
    - “Z” is the time zone indicator for GMT
    - “R” is the time zone indicator for EST
    - “L” is the time zone indicator for … where? Local time?

30 (“No more – the end.”), 73, and 88 come from the Western Union “92 Code”, 1858. “33” means “Answer is paid.”
The “L” time zone is Wake Island and New Caledonia, in the Pacific Ocean – not your local time.

Messing up an accepted standard disrespects the people and the effort that went into the standard - they followed the rules, you didn’t.
If you want to add to someone else’s established standard, determine the process and formally propose the change.
If you have to make your own code or nomenclature that could become a standard, avoid ambiguity – don’t assume the context is understood



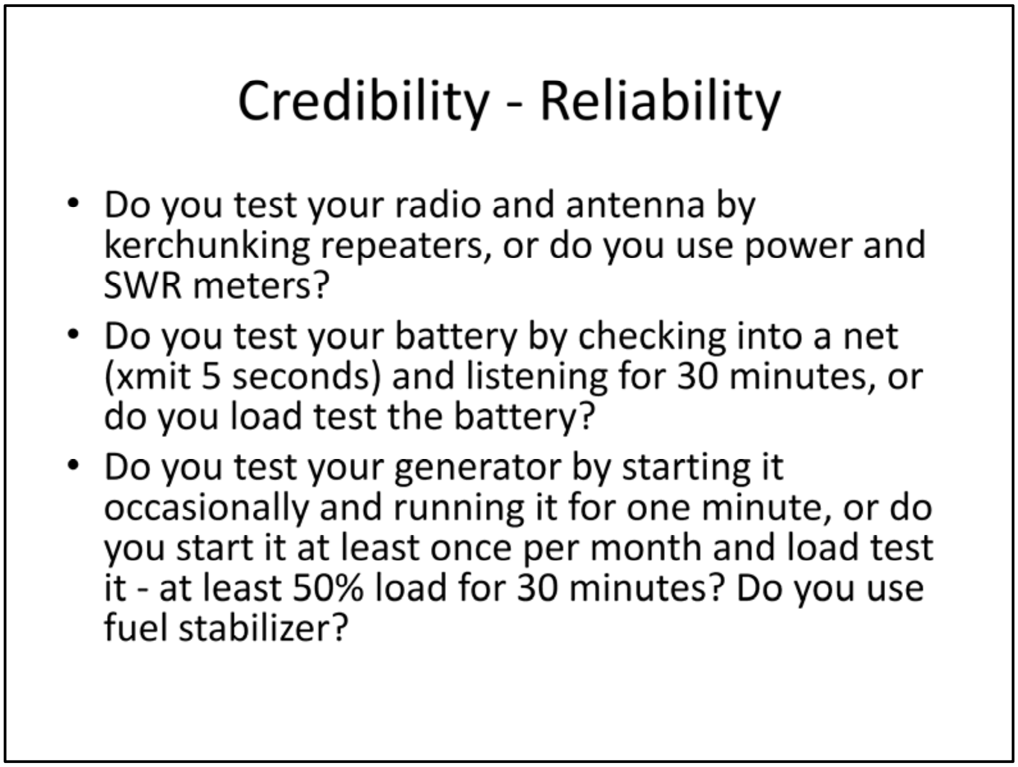
Credibility - Standardization

- Flexibility - Repair - Interoperability
  - Connectors
    - Power
    - Antenna
    - Audio
    - Microphone and control
    - TNC
  - Assortment of Adapters

Without standards, harder to do job – can’t connect radio to antenna, headphones to receiver …

Encourage the development of standards – e.g. in microphone signals, levels, connectors

If we can’t get manufacturers to agree on a standard, we should develop an interface standard –
You can’t have an interface cable for everything you have to everything everyone else has,
but you can make a cable to what you have to a single interface standard
- Connectors and polarity and levels



Credibility - Reliability

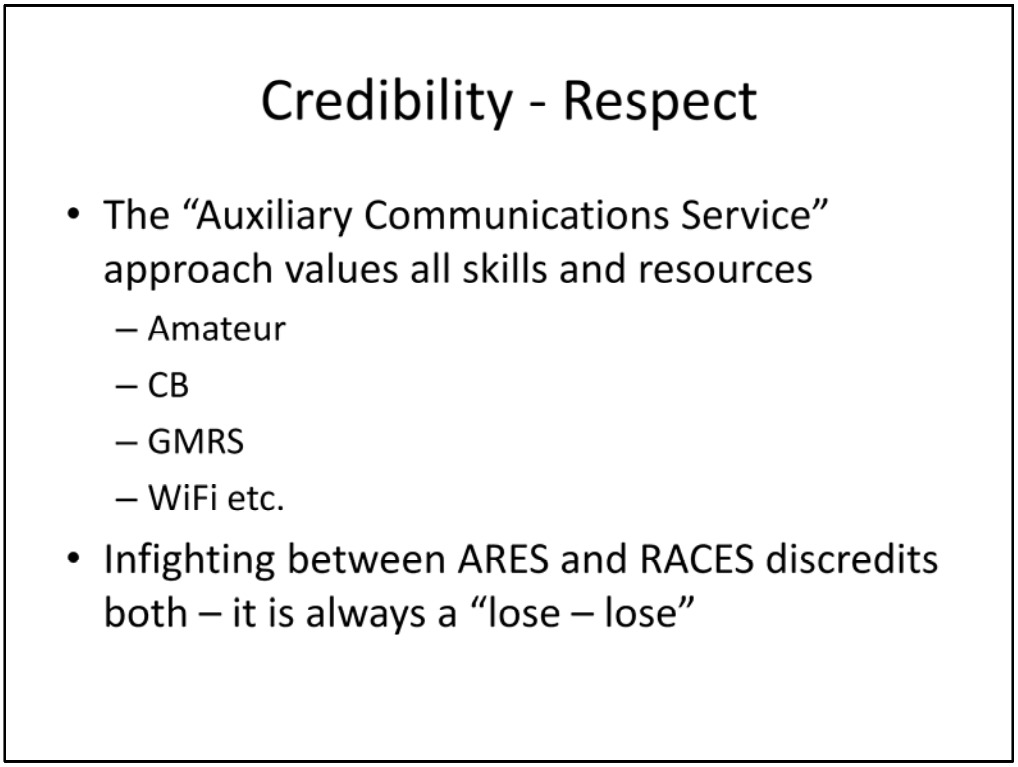
- Do you test your radio and antenna by kerchunking repeaters, or do you use power and SWR meters?
- Do you test your battery by checking into a net (xmit 5 seconds) and listening for 30 minutes, or do you load test the battery?
- Do you test your generator by starting it occasionally and running it for one minute, or do you start it at least once per month and load test it - at least 50% load for 30 minutes? Do you use fuel stabilizer?

“But it worked fine the last time I used it”

Do you buy quality connectors, or the cheapest you can find?

Credibility - Reliability

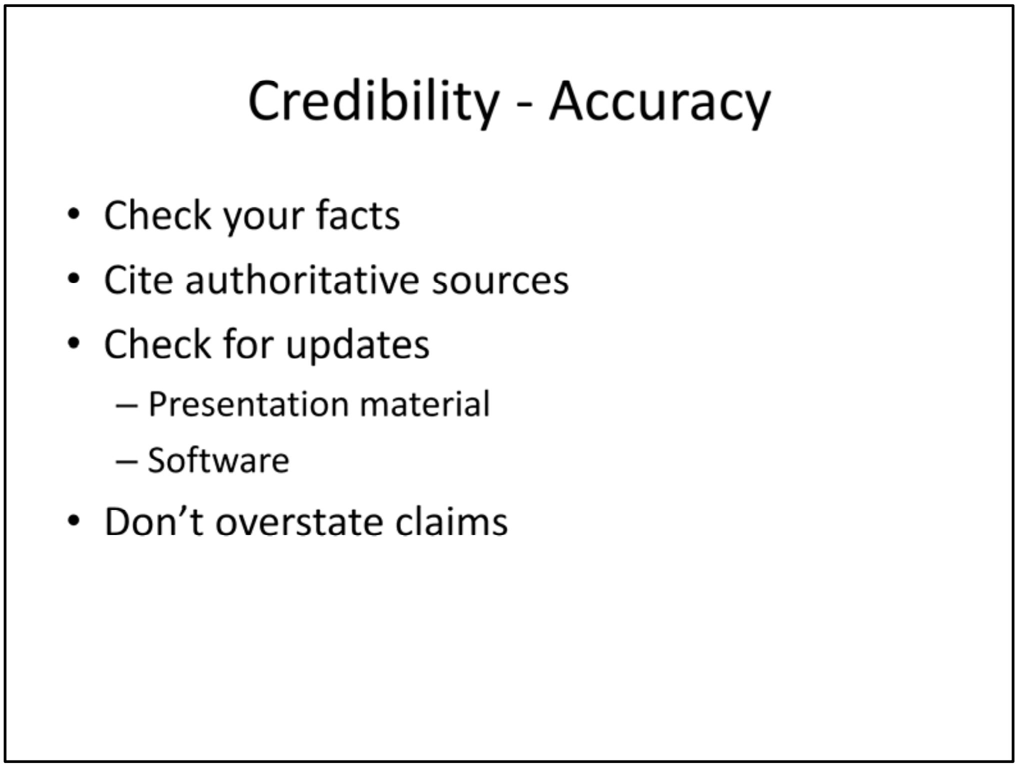
- Do you keep your gas tank at least half full?
- If your emergency communications plan depends on cellular telephones, you don’t have an emergency communications plan.



Credibility - Respect

- The "Auxiliary Communications Service" approach values all skills and resources
  - Amateur
  - CB
  - GMRS
  - WiFi etc.
- Infighting between ARES and RACES discredits both – it is always a "lose – lose"

You don't make yourself look better by making someone else look worse.



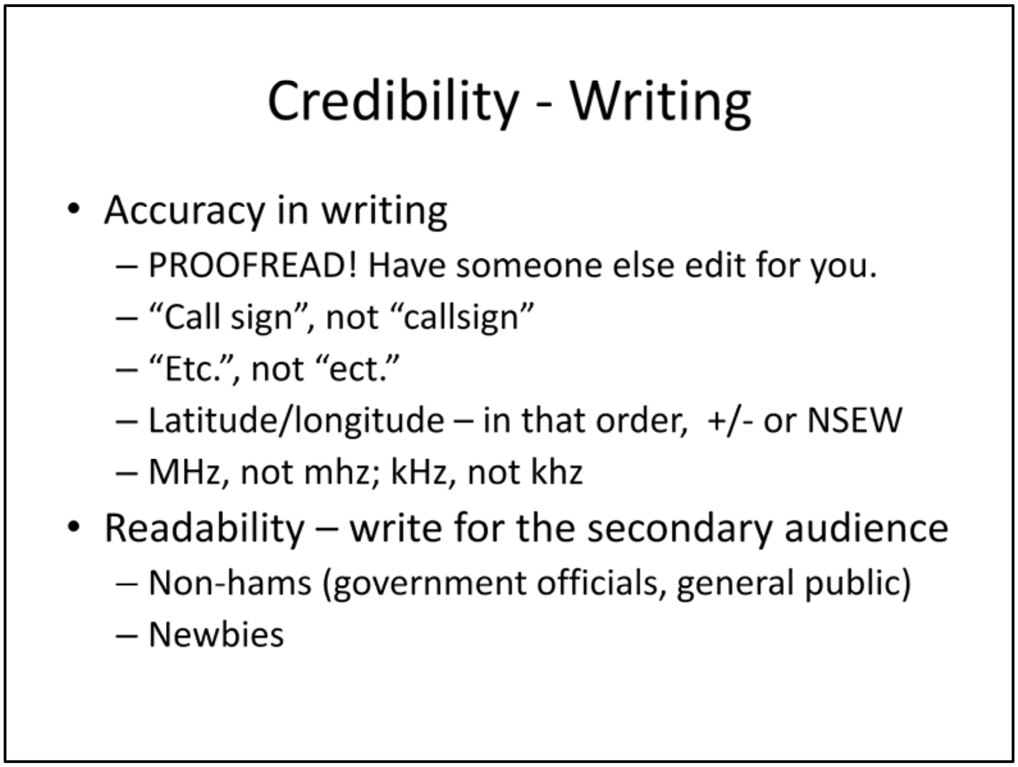
Credibility - Accuracy

- Check your facts
- Cite authoritative sources
- Check for updates
  - Presentation material
  - Software
- Don’t overstate claims

“The Internet” is not an authoritative source.

Don’t overstate claims – about
… reliability, range, data throughput,
number of people who WILL respond (vs. CAN respond)

Work with a qualified PIO – don’t just stick someone with the job



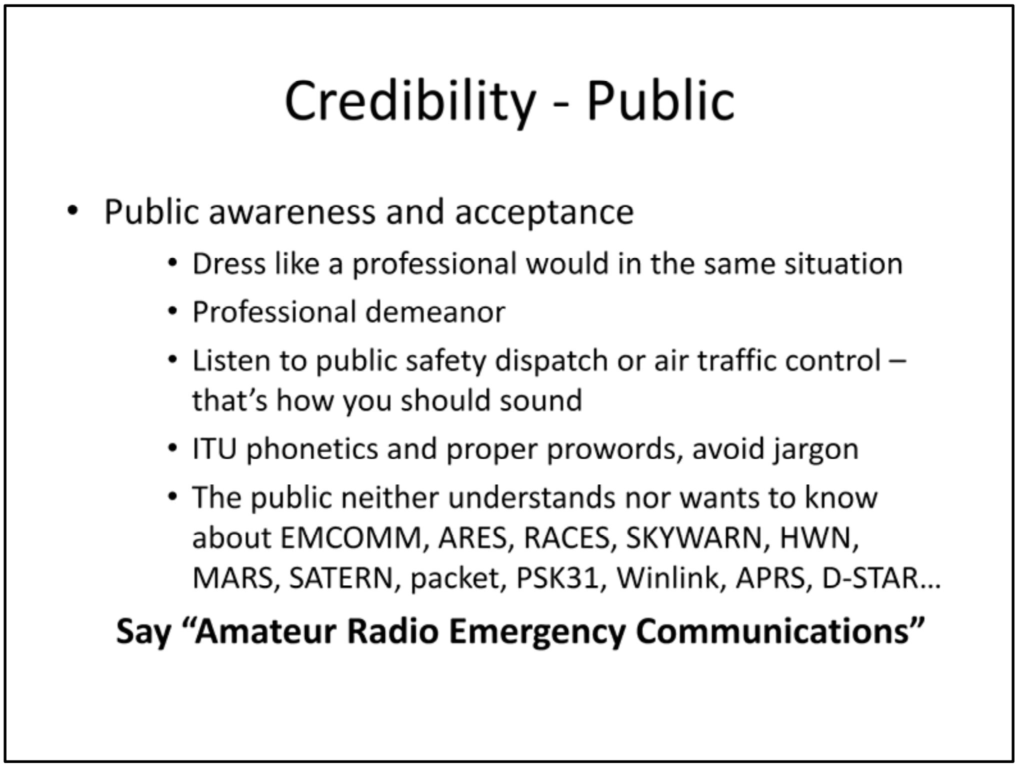
Credibility - Writing

- Accuracy in writing
  - PROOFREAD! Have someone else edit for you.
  - “Call sign”, not “callsign”
  - “Etc.”, not “ect.”
  - Latitude/longitude – in that order, +/- or NSEW
  - MHz, not mhz; kHz, not khz
- Readability – write for the secondary audience
  - Non-hams (government officials, general public)
  - Newbies

“Call sign”, not “callsign” - Authoritative sources: FCC regs. NTIA regs, ITU regs.

What part of the US is in the southern hemisphere? American Samoa

What parts of the US have East longitutes? Guam, Northern Marianas Islands



Credibility - Public

- Public awareness and acceptance
  - Dress like a professional would in the same situation
  - Professional demeanor
  - Listen to public safety dispatch or air traffic control – that’s how you should sound
  - ITU phonetics and proper prowords, avoid jargon
  - The public neither understands nor wants to know about EMCOMM, ARES, RACES, SKYWARN, HWN, MARS, SATERN, packet, PSK31, Winlink, APRS, D-STAR…

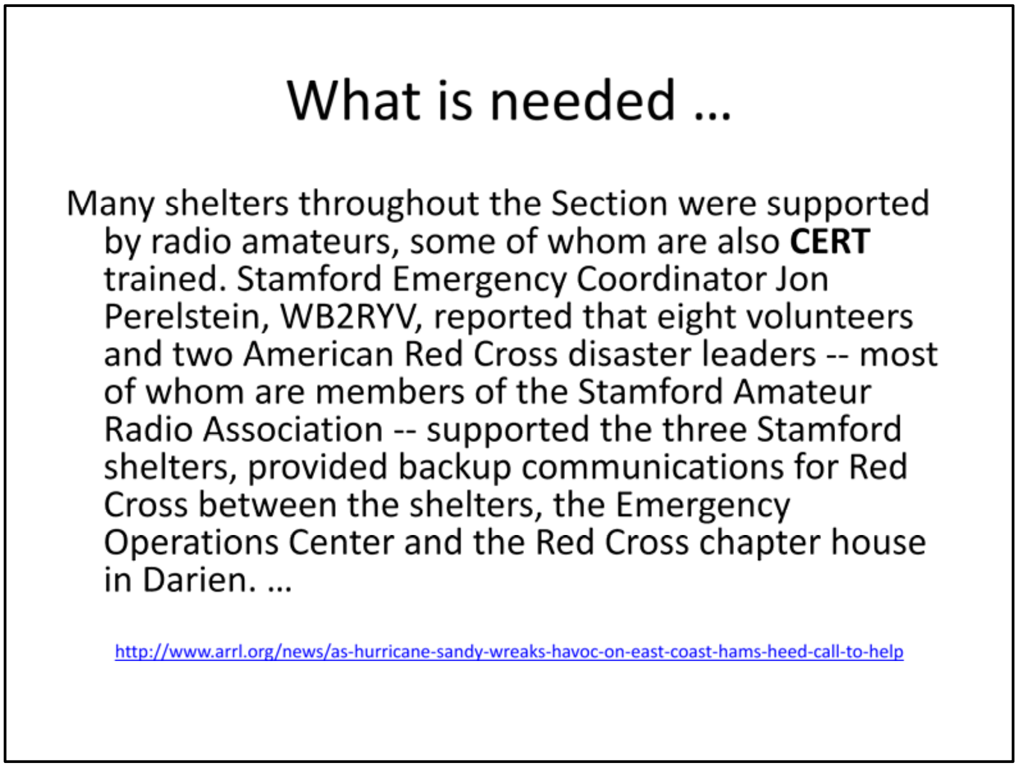
Say “Amateur Radio Emergency Communications”

Jargon – radio equipment, not rig

Saying “Amateur Radio Emergency Communications” promotes all of us together – don’t pit us against ourselves.

Saying “Amateur Radio Emergency Communications” is something the public can understand and remember.

“EMCOMM” – did we really need another jargon word that no one else understands?

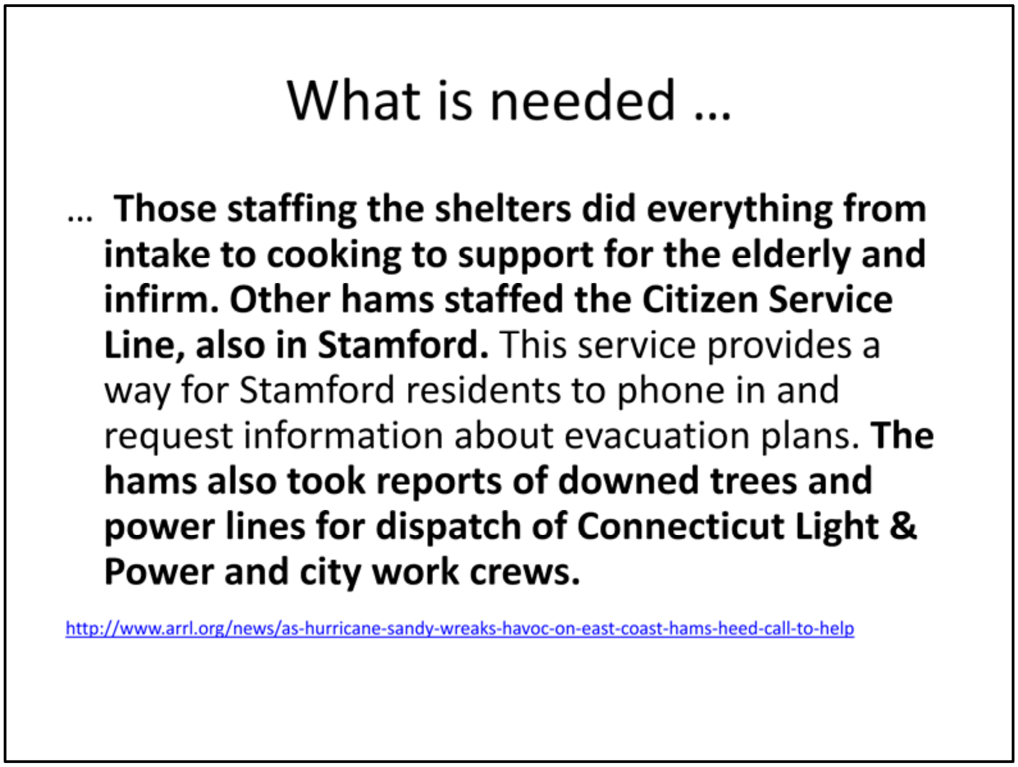


What is needed …

Many shelters throughout the Section were supported by radio amateurs, some of whom are also **CERT** trained. Stamford Emergency Coordinator Jon Perelstein, WB2RYV, reported that eight volunteers and two American Red Cross disaster leaders -- most of whom are members of the Stamford Amateur Radio Association -- supported the three Stamford shelters, provided backup communications for Red Cross between the shelters, the Emergency Operations Center and the Red Cross chapter house in Darien. …

http://www.arrl.org/news/as-hurricane-sandy-wreaks-havoc-on-east-coast-hams-heed-call-to-help

What is needed in an emergency, that we as Amateurs can do?



What is needed …

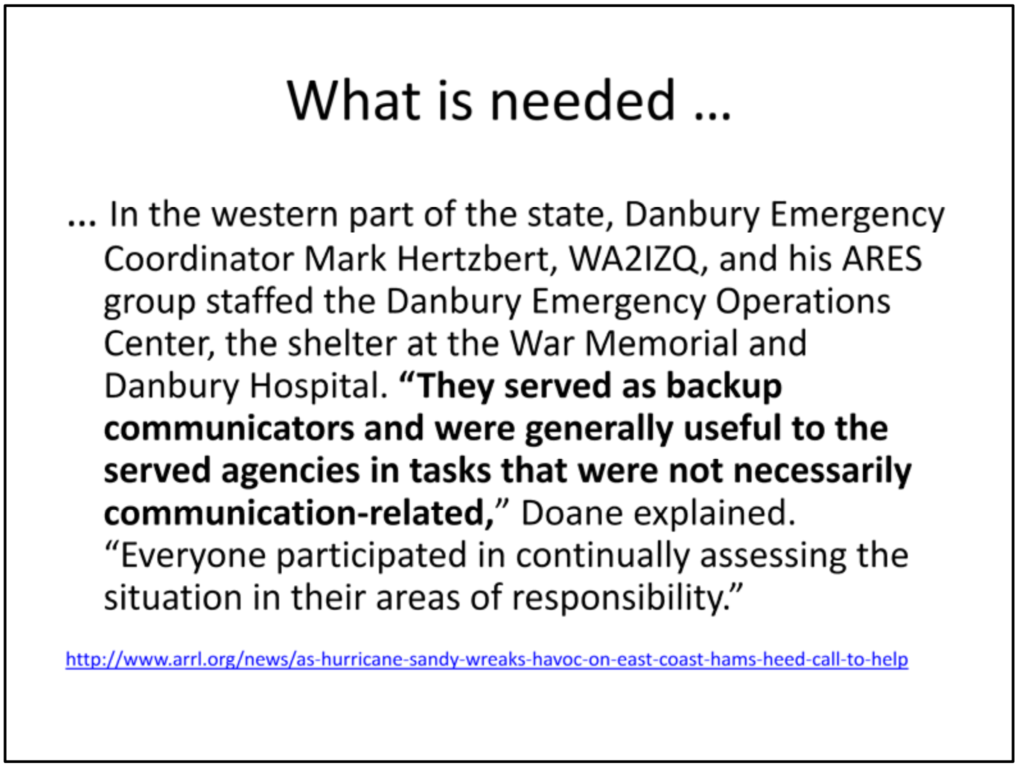
… **Those staffing the shelters did everything from intake to cooking to support for the elderly and infirm. Other hams staffed the Citizen Service Line, also in Stamford.** This service provides a way for Stamford residents to phone in and request information about evacuation plans. **The hams also took reports of downed trees and power lines for dispatch of Connecticut Light & Power and city work crews.**

http://www.arrl.org/news/as-hurricane-sandy-wreaks-havoc-on-east-coast-hams-heed-call-to-help

What is needed …

… "While **backup communications were not needed during Hurricane Sandy**, we had operators at all the shelters in the area, at the EOC and at the Darien Red Cross chapter house," Doane said. **"Our ham volunteers also became involved as 'expediters' in dealing with various problems, such as untangling a (non-radio) communications issue that was interfering with food deliveries to the Stamford shelters.** *In the aftermath of the storm, the Stamford Mayor Michael Pavia was careful to single out SARA participants to various visiting politicians, including US Senator Richard Blumenthal. Both the mayor and the Director of Public Safety made specific mention of amateur radio in thanking the various volunteer groups who helped the city."*

http://www.arrl.org/news/as-hurricane-sandy-wreaks-havoc-on-east-coast-hams-heed-call-to-help

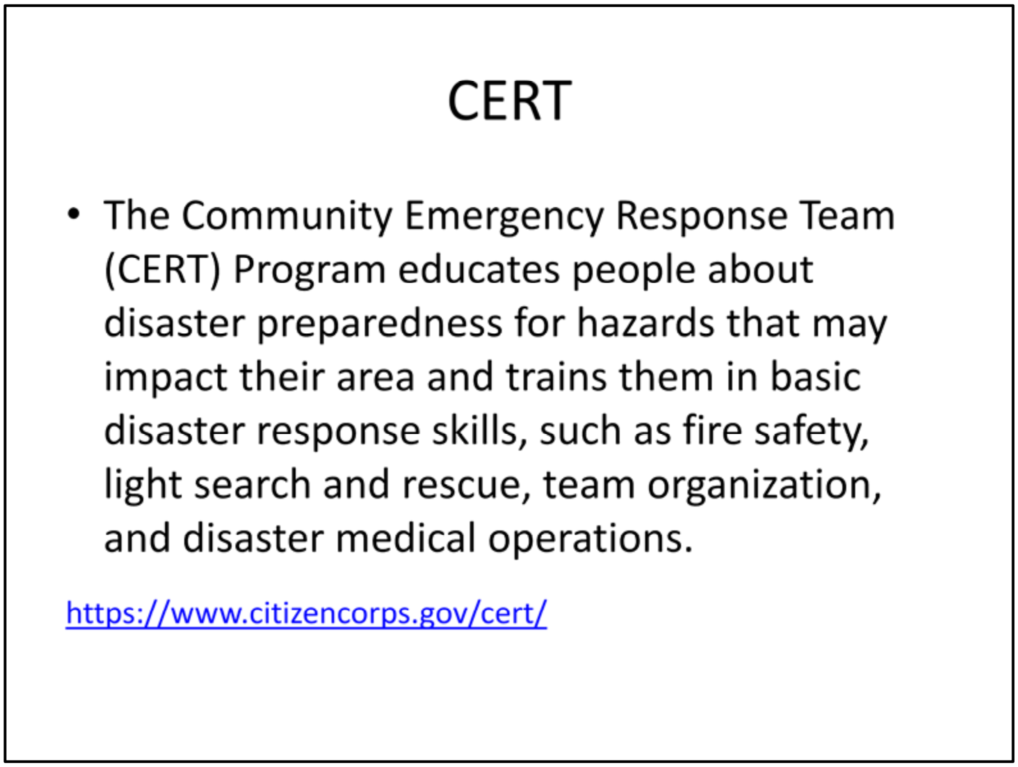


What is needed …

… In the western part of the state, Danbury Emergency Coordinator Mark Hertzbert, WA2IZQ, and his ARES group staffed the Danbury Emergency Operations Center, the shelter at the War Memorial and Danbury Hospital. **“They served as backup communicators and were generally useful to the served agencies in tasks that were not necessarily communication-related,”** Doane explained. “Everyone participated in continually assessing the situation in their areas of responsibility.”

http://www.arrl.org/news/as-hurricane-sandy-wreaks-havoc-on-east-coast-hams-heed-call-to-help

It was the Amateur Radio CULTURE, not the frequencies, modes, equipment, protocols etc. that was the hero – a culture of HELPING, PROBLEM SOLVING, TELECOMMUNICATIONS savvy, and COMMUNICATION savvy (the meaning of words)

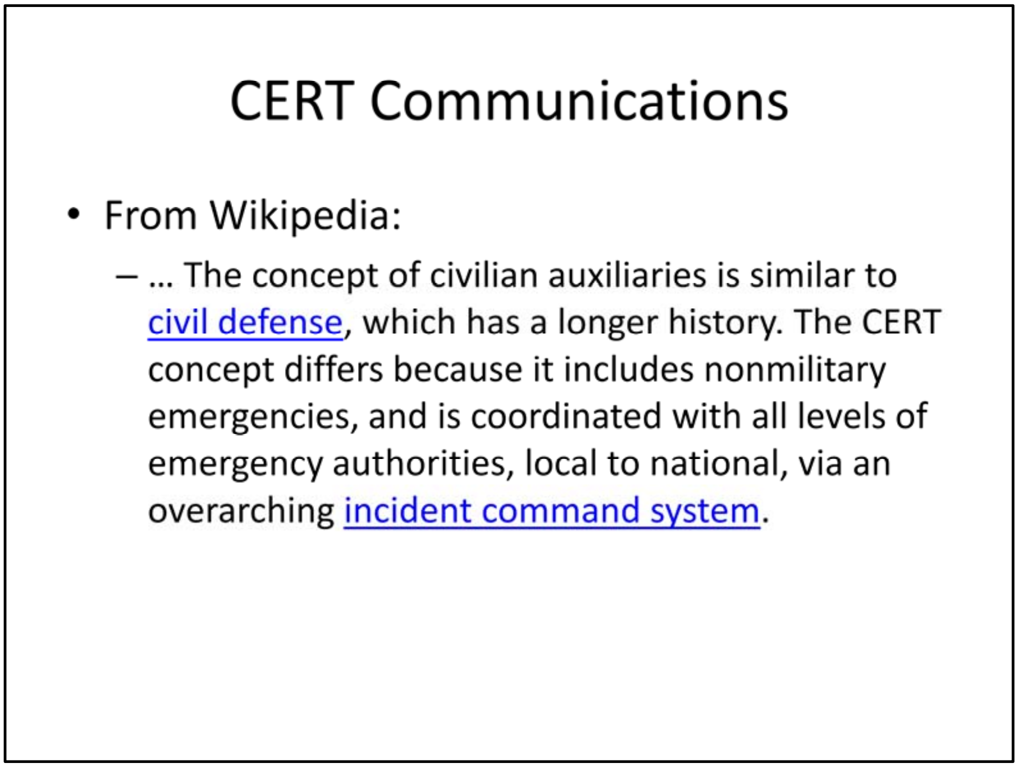


CERT

- The Community Emergency Response Team (CERT) Program educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations.

https://www.citizencorps.gov/cert/

“Many shelters … wee supported by radio amateurs, some of whom were also CERT trained.”



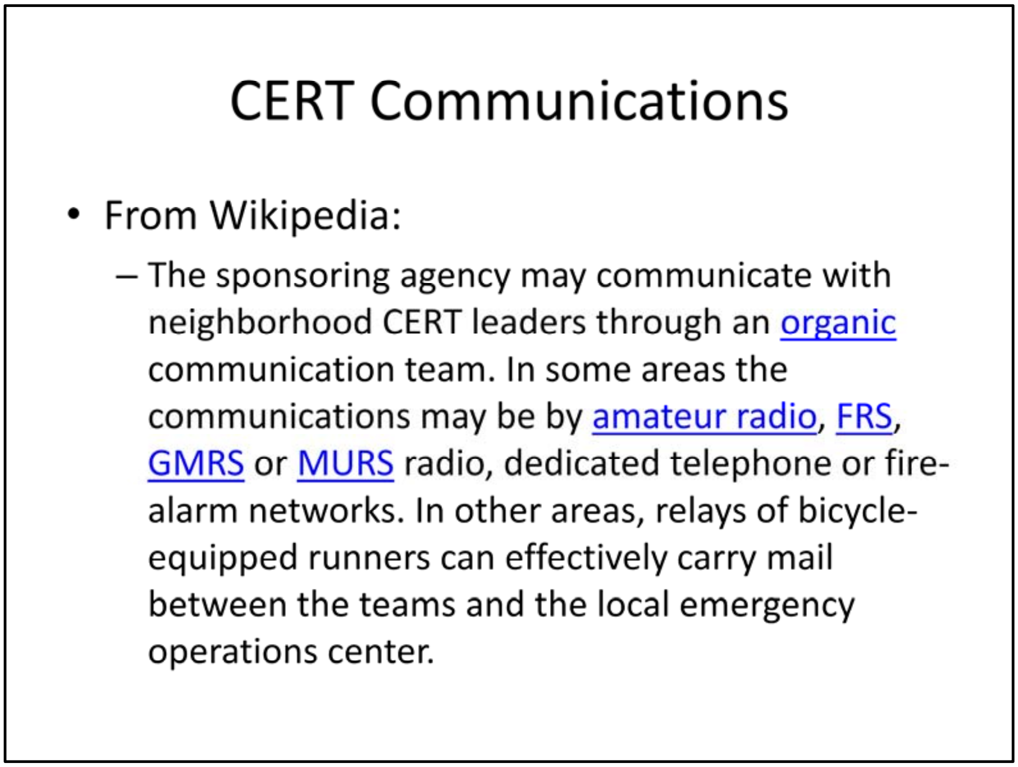
CERT Communications

- From Wikipedia:
  - … The concept of civilian auxiliaries is similar to civil defense, which has a longer history. The CERT concept differs because it includes nonmilitary emergencies, and is coordinated with all levels of emergency authorities, local to national, via an overarching incident command system.

Sound familiar?

CERT Communications

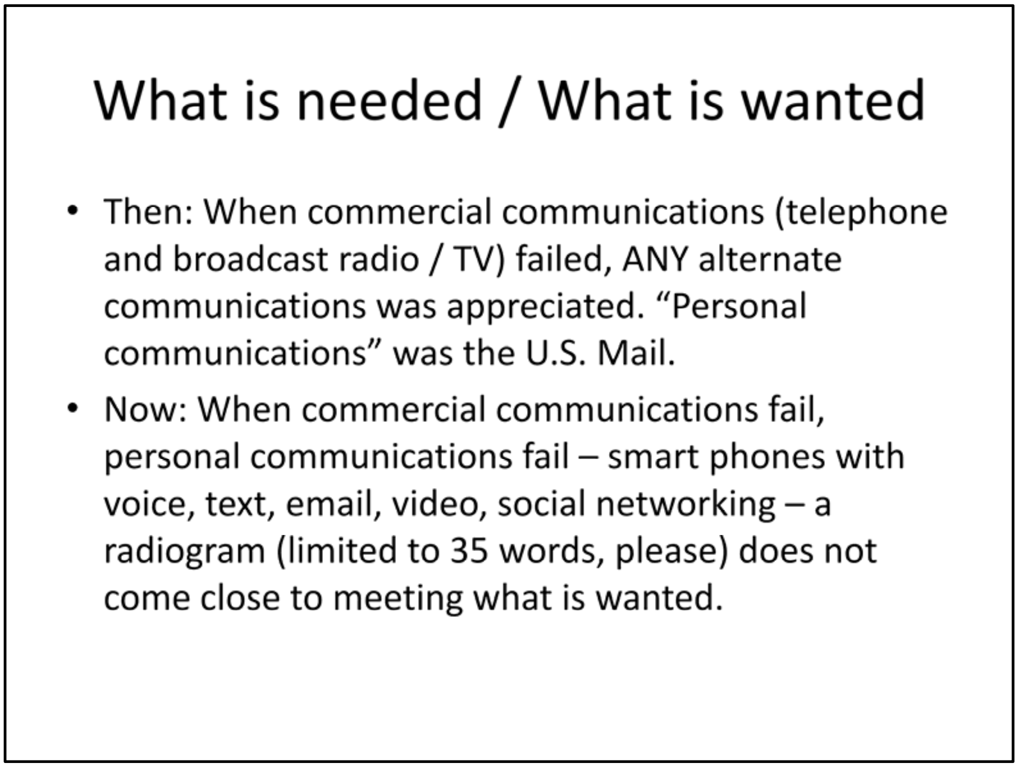
- Do CERT members need communications?
- Do CERT members need Amateur Radio communications?



CERT Communications

- From Wikipedia:
  - The sponsoring agency may communicate with neighborhood CERT leaders through an organic communication team. In some areas the communications may be by amateur radio, FRS, GMRS or MURS radio, dedicated telephone or fire-alarm networks. In other areas, relays of bicycle-equipped runners can effectively carry mail between the teams and the local emergency operations center.

We can help CERTs find the communications that meet their requirements.
Amateur Radio, in some cases, is the best choice.
Help by bringing your radio knowledge into the CERT, not my making them a “served agency” – that’s not what they need.

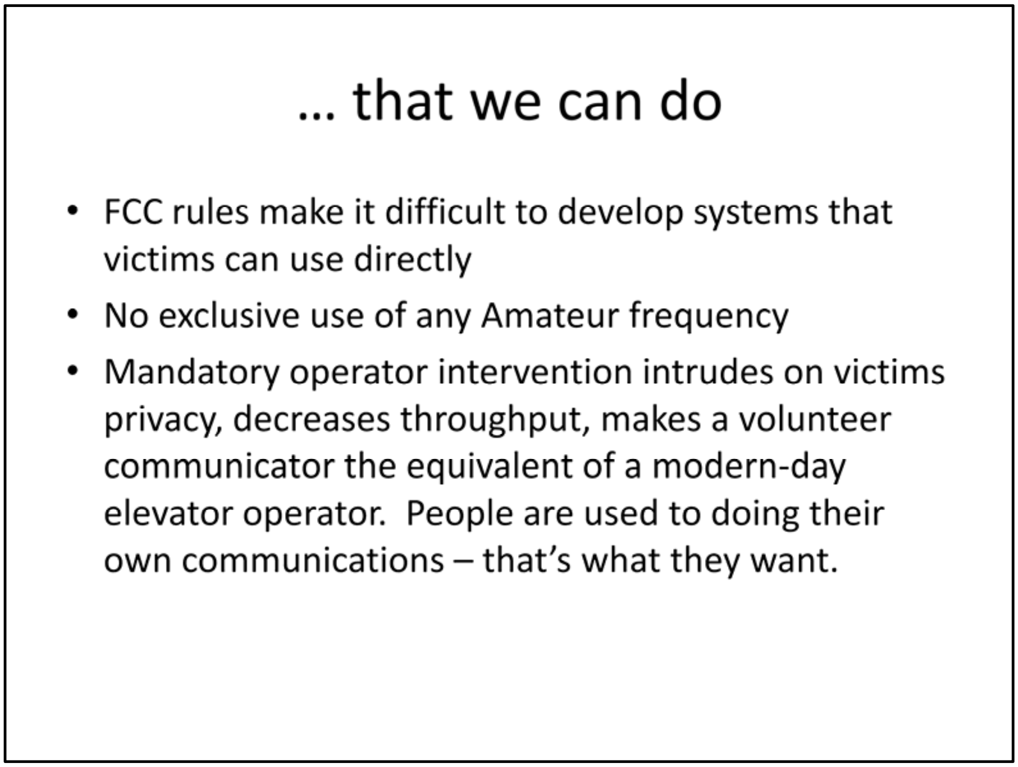


What is needed / What is wanted

- Then: When commercial communications (telephone and broadcast radio / TV) failed, ANY alternate communications was appreciated. “Personal communications” was the U.S. Mail.
- Now: When commercial communications fail, personal communications fail – smart phones with voice, text, email, video, social networking – a radiogram (limited to 35 words, please) does not come close to meeting what is wanted.

What is wanted

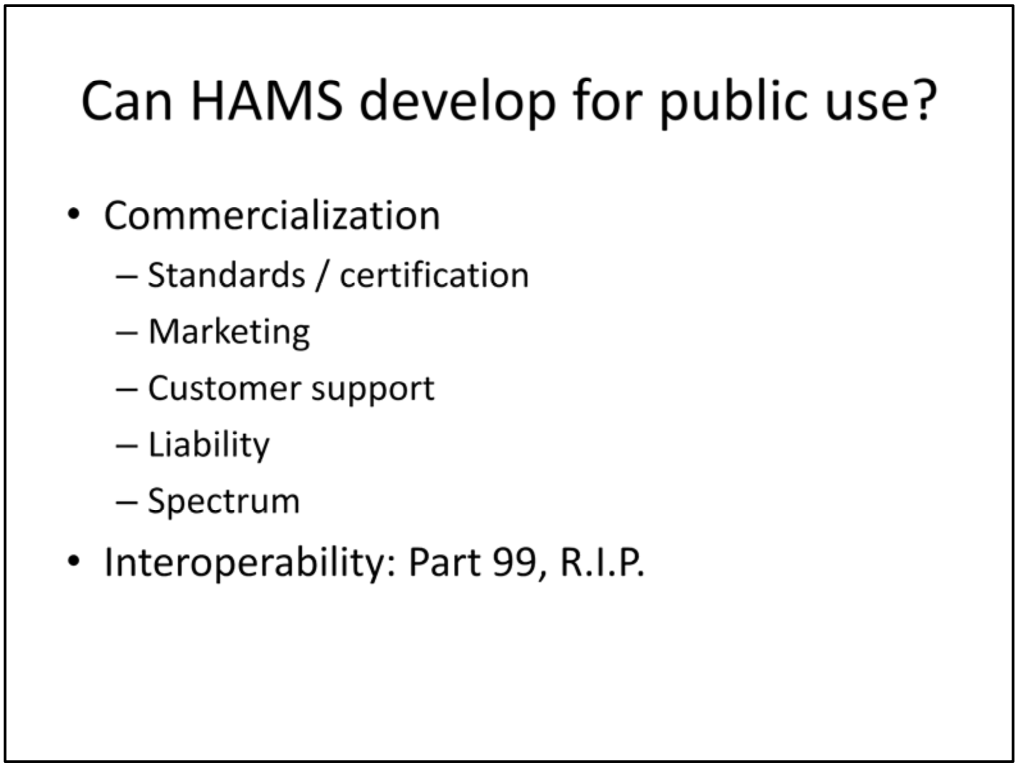
- Wireless Access / Backhaul
- Wireless LAN
- High-speed data, with error correction
- E-mail is the modern equivalent of the radiogram



… that we can do

- FCC rules make it difficult to develop systems that victims can use directly
- No exclusive use of any Amateur frequency
- Mandatory operator intervention intrudes on victims privacy, decreases throughput, makes a volunteer communicator the equivalent of a modern-day elevator operator. People are used to doing their own communications – that's what they want.

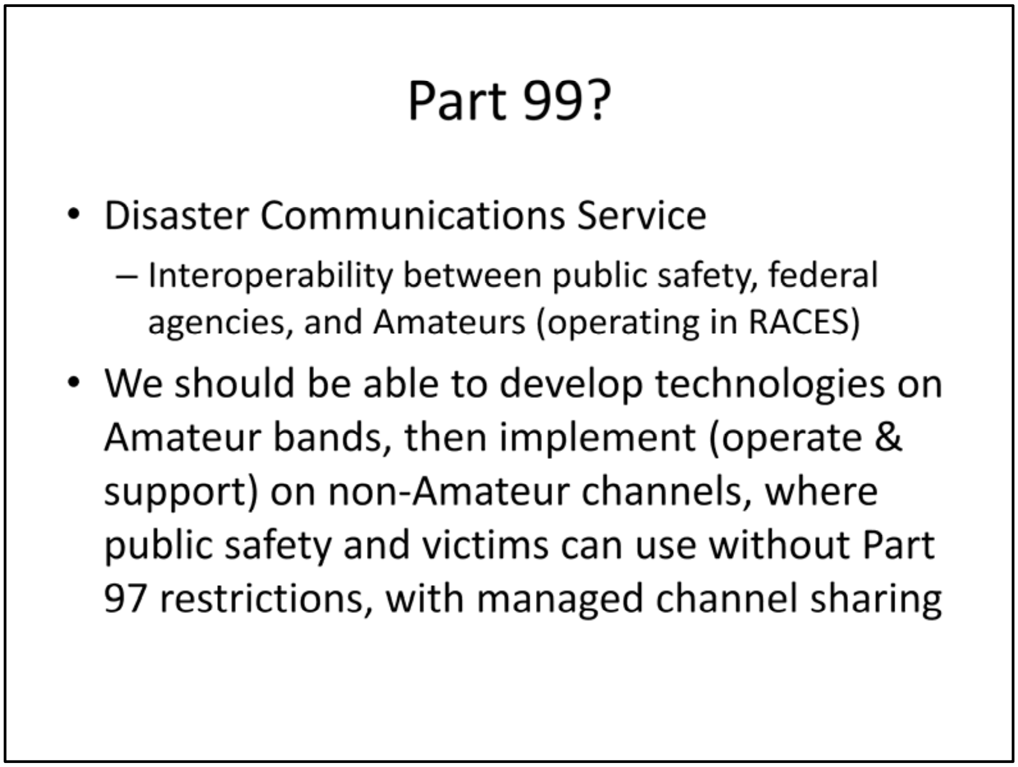
What is wanted … that we can do



Can HAMS develop for public use?

- Commercialization
  - Standards / certification
  - Marketing
  - Customer support
  - Liability
  - Spectrum
- Interoperability: Part 99, R.I.P.

Amateur call signs are limited to 6 characters generally; public safety and others can be up to 8 characters. Why build a 6-character limit into software?
Remember VE7EXPO ?



Part 99?

- Disaster Communications Service
  - Interoperability between public safety, federal agencies, and Amateurs (operating in RACES)
- We should be able to develop technologies on Amateur bands, then implement (operate & support) on non-Amateur channels, where public safety and victims can use without Part 97 restrictions, with managed channel sharing

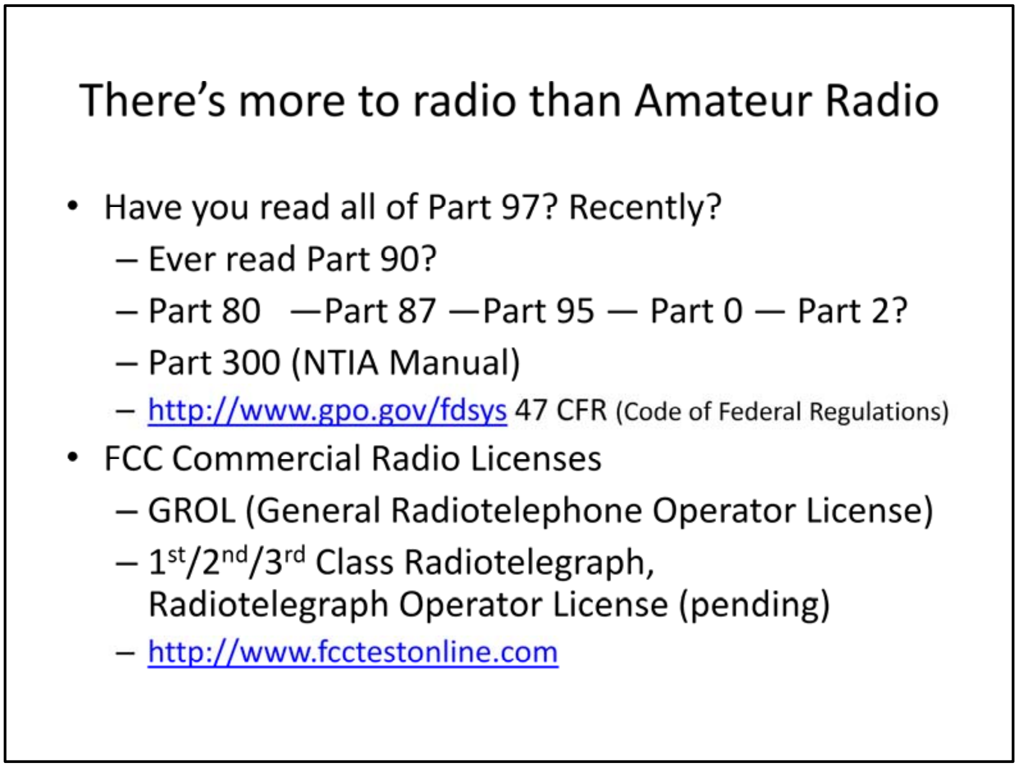
For example: MARS VHF repeaters and HF channels

Any encroachment by Public Safety on Amateur spectrum puts all Amateur spectrum at risk.

Limited access by amateurs to non-amateur spectrum has worked out very well – e.g. MARS channels in the FIXED Service bands, & Amateur secondary status at 5 MHz.

§ 97.1 Basis and purpose.

- *… (d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.*
- It doesn’t say AMATEUR operators, AMATEUR technicians, and AMATEUR electronics experts
- What do you know about P25? Trunking?
- Would/could you operate a SAR radio? DOT?

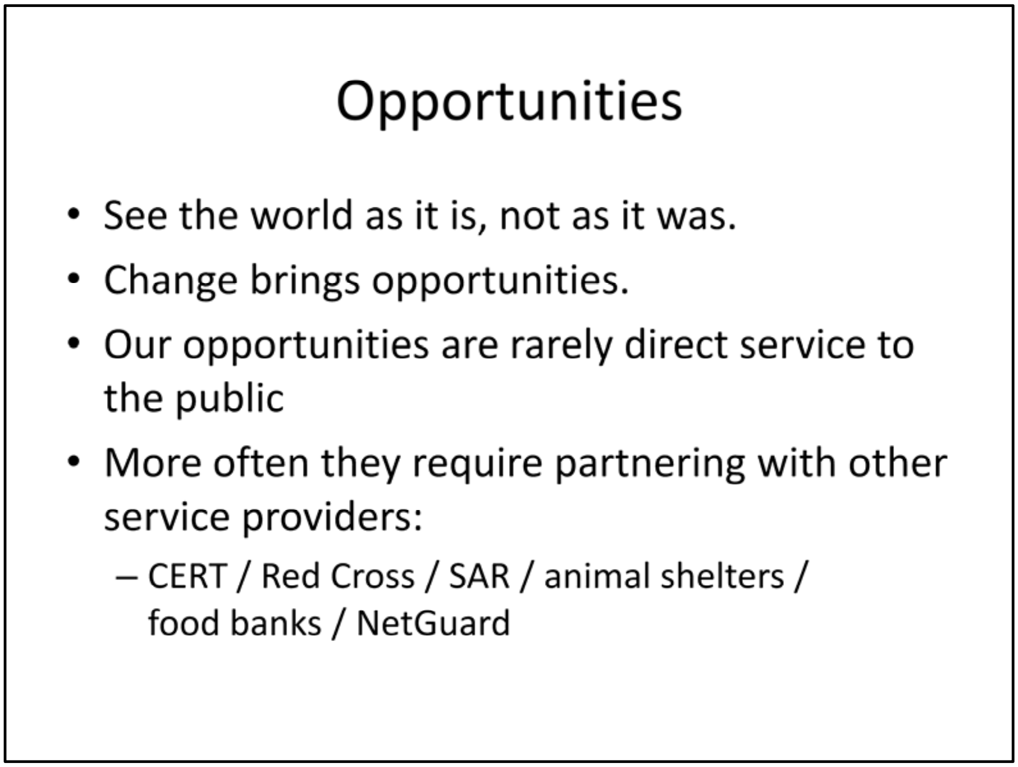


There’s more to radio than Amateur Radio

- Have you read all of Part 97? Recently?
  - Ever read Part 90?
  - Part 80 —Part 87 —Part 95 — Part 0 — Part 2?
  - Part 300 (NTIA Manual)
  - http://www.gpo.gov/fdsys 47 CFR (Code of Federal Regulations)
- FCC Commercial Radio Licenses
  - GROL (General Radiotelephone Operator License)
  - 1st/2nd/3rd Class Radiotelegraph, Radiotelegraph Operator License (pending)
  - http://www.fcctestonline.com

What are each of these parts? Part 0? Part 2? Do you know what the international distress frequencies are?

Radiotelegraph Operator License FCC 13-4 REPORT AND ORDER WT Docket No. 10-177 Adopted & Released: January 8, 2013, but not yet published in the Federal Register http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-13-4A1.pdf

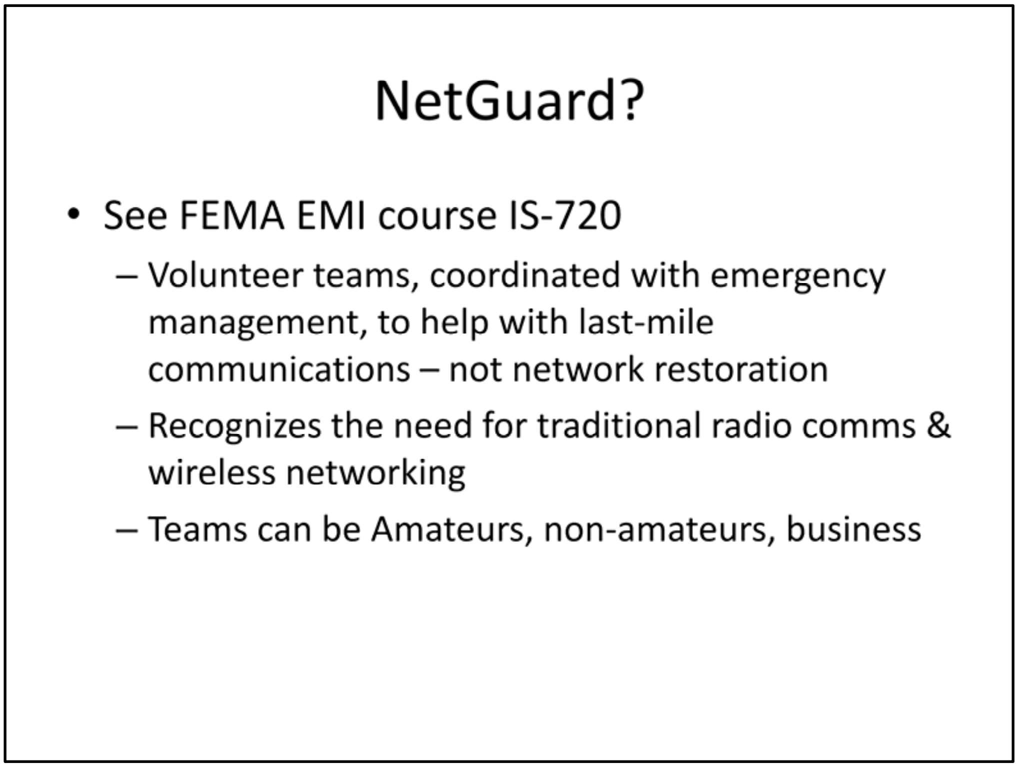


Opportunities

- See the world as it is, not as it was.
- Change brings opportunities.
- Our opportunities are rarely direct service to the public
- More often they require partnering with other service providers:
  - CERT / Red Cross / SAR / animal shelters / food banks / NetGuard

Problems are naked opportunities. Dress them up and they become solutions.

NetGuard? What’s that? (next slide)

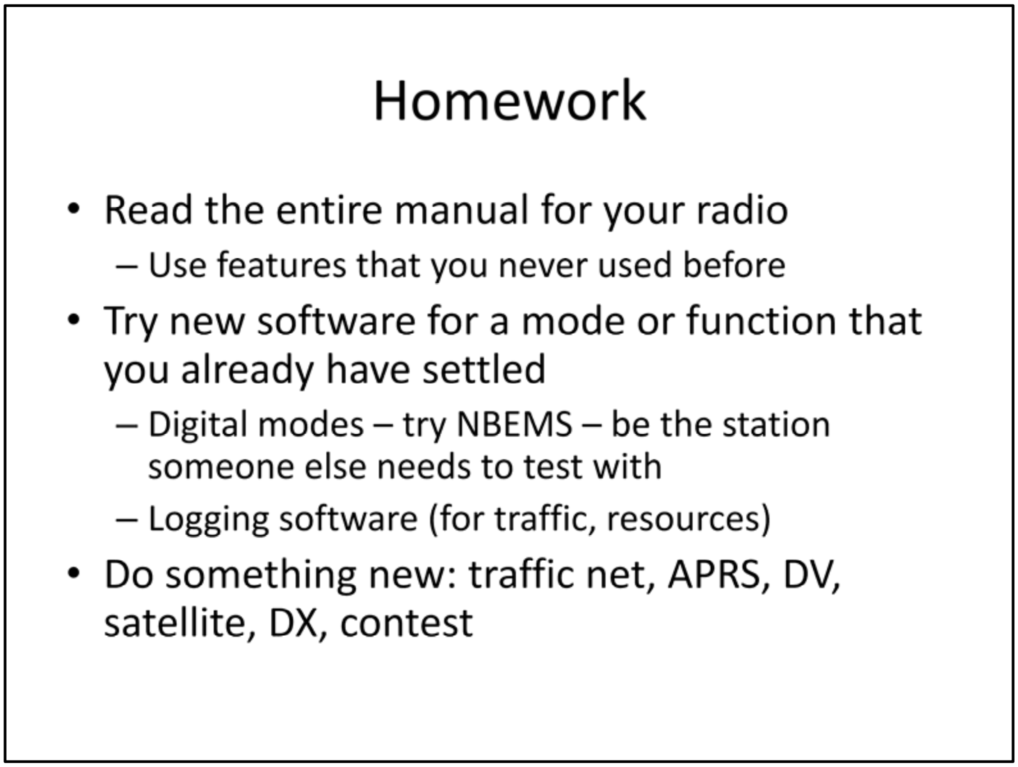


NetGuard?

- See FEMA EMI course IS-720
  - Volunteer teams, coordinated with emergency management, to help with last-mile communications – not network restoration
  - Recognizes the need for traditional radio comms & wireless networking
  - Teams can be Amateurs, non-amateurs, business

NetGuard is a cross between the internet, the ?National Guard, and volunteers

NOT geeks with guns

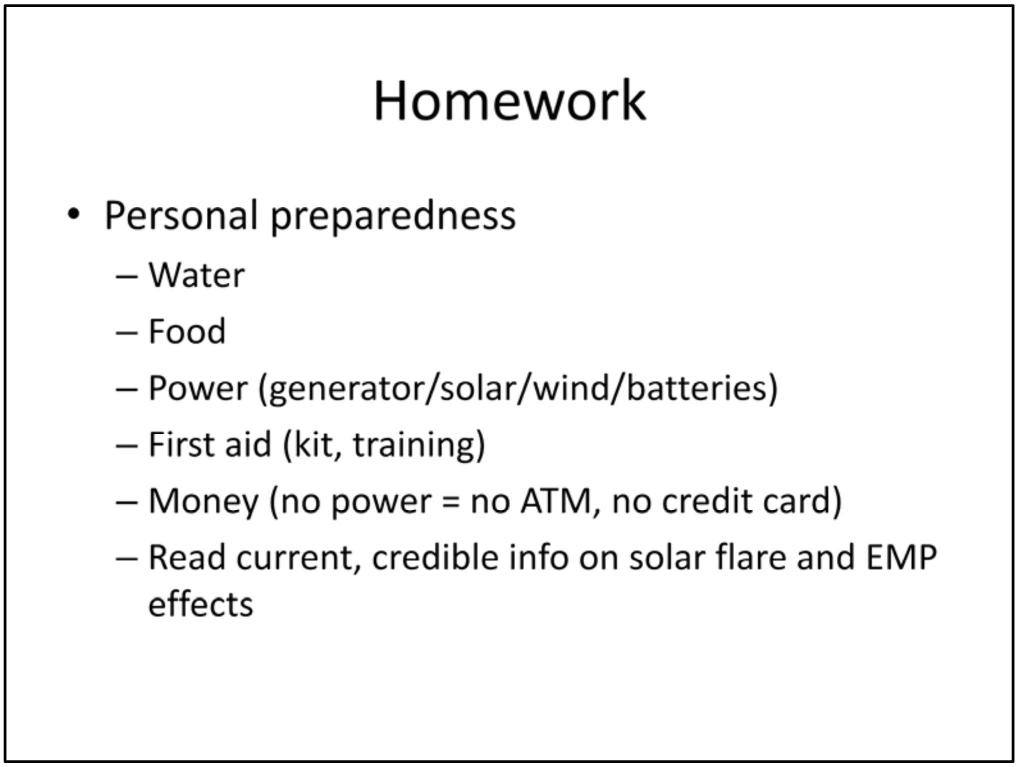


Homework

- Read the entire manual for your radio
  - Use features that you never used before
- Try new software for a mode or function that you already have settled
  - Digital modes – try NBEMS – be the station someone else needs to test with
  - Logging software (for traffic, resources)
- Do something new: traffic net, APRS, DV, satellite, DX, contest

Maintaining Readiness When Nothing Bad Is Happening

___
Get on the air – if not for yourself, for whoever you contact. They can’t evaluate their antenna, learn to recognize that new digital mode, tweak settings etc. without YOU to communicate with.

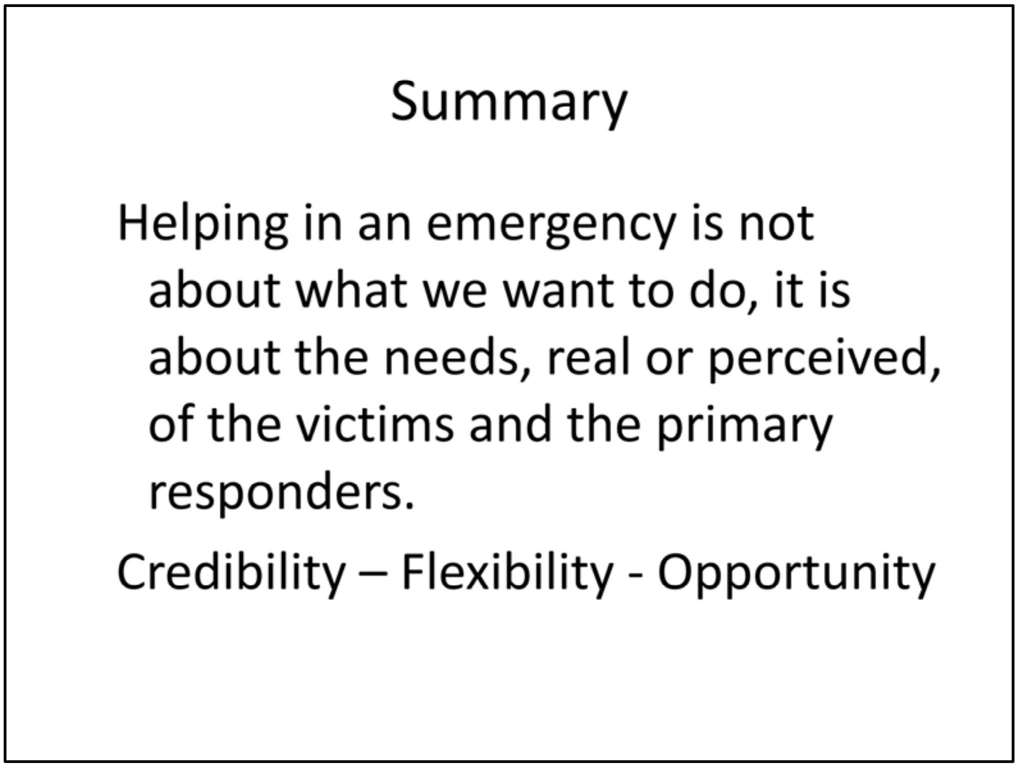


Homework

- Personal preparedness
  - Water
  - Food
  - Power (generator/solar/wind/batteries)
  - First aid (kit, training)
  - Money (no power = no ATM, no credit card)
  - Read current, credible info on solar flare and EMP effects

First Aid kit without First Aid training is barely useful.

Your radio skills without constant refreshment – not reliable.



Summary

Helping in an emergency is not about what we want to do, it is about the needs, real or perceived, of the victims and the primary responders.

Credibility – Flexibility - Opportunity

How to Maintain Readiness When Nothing Bad Is Happening:

Establish and maintain your credibility

Enhance your flexibility – standardize connectors, have adapter, acquire and practice skills – do something different

Recognize new opportunities, don’t just look for the old opportunities.

Being able to help when it really matters isn’t a matter of luck. Luck is when preparation meets opportunity.

Thank You

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